

REMARKS

I. Status of the Claims

Before this amendment, claims 1-11 were pending. Without prejudice or disclaimer, claims 1 and 11 are amended to incorporate the limitation of claim 2. Claim 2 is cancelled without prejudice or disclaimer. Claims 3 and 4 are amended to change their dependency in view of cancellation of claim 2. No new matter is introduced by these amendments.

II. Information Disclosure Statement

The Office stated that "[t]he information disclosure statement filed on December 5, 2008 does not fully comply with the requirement of 37 CFR 1.98(b) because none of the foreign patents identify the country that the patents are issued in (also, the Applicants should provide a document kind code for each of the references, i.e. 'A', 'C', etc." Office Action at page 2. Applicants thank the Examiner for pointing out the inadvertent error and hereby submit a Supplemental Information Disclosure Statement listing the foreign patent documents cited in the Information Disclosure Statement filed December 5, 2008. Applicants respectfully request the Examiner consider the cited references and indicate that they were considered by making appropriate notations on the attached SB08 form.

III. Rejection under 35 U.S.C. §103(a)

The Office rejected claims 1-11 under 35 U.S.C. §103(a) as allegedly "being unpatentable" over U.S. Patent No. 6,080,376 to Iida et al. ("*Iida*") in view of U.S. Patent No. 5,658,546 to Kobayashi et al. ("*Kobayashi*") and U.S. Patent No. 5,591,141 to

Jacob et al. ("*Jacob*") for the reasons stated in pages 3-6 of the Office Action. Although Applicants disagree with the rejection, solely to advance the prosecution of this application, Applicants have amended independent claims 1 and 11 to recite the limitation of claim 2. Applicants respectfully submit that the combination of *lida*, *Kobayashi*, and *Jacob* could not have rendered the presently claimed invention obvious for the following reasons.

In the Office Action, the Office acknowledged that "[t]he difference between the Applicants' claims and the *lida* patent is that certain of the Applicants' claims require that the catalyst also contains sulfur or phosphorus." Office Action at page 5. The Office, however, asserts that:

[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to *have modified* the process and apparatus of the *lida* patent by *selectively including* the sulfur and/or phosphorus taught in col. 1 lns. 7-31 in the *Jacob* patent into the denitration catalyst of the *lida* patent, in the manner required by the Applicants' claim, **because** of the suggested advantage of the sulfur and/or phosphorus to promote the removal of any organics and/or hydrocarbons; particulates and/or sulfur compounds that may be present in the exhaust gas, . . .

Id. at 5-6 (emphasis original). Applicants respectfully disagree.

Jacob is directed to "a sorption catalytic converter for the combined chemisorptive and oxidative cleaning of diesel engine exhaust gases with a high blocking activity for highly volatile organic exhaust gas components." See *Jacob*, abstract. *Jacob* teaches that its catalytic converter comprised "a doped catalytically active material comprised of a solid acid system $V_2O_5/SiO_2/TiO_2/Al_2O_3/SO_4^{2-}/PO_4^{3-}$ of a high

surface area.” *Id.* col. 2, lines 39-42. According to *Jacob*, its sorption catalytic converter can reduce the emission of the diesel engine exhaust gas components including:

1. Highly volatile organic compounds such as propane, formaldehyde, decane, and tridecane.
2. Moderately and scarcely volatile organic compounds adsorbed on particles;
3. Substances with a pungent odor and aggressive substances belong in the compound classes 1 and 2;
4. Ammonia, which is to be expected from diesel engines when using urea or NH_3 SCR technology for reducing NO_x ; and
5. Carbon monoxide, CO.

See *id.* col. 3, lines 10-38. However, *Jacob* does not teach or suggest that its doped catalytically active material comprised of $\text{V}_2\text{O}_5/\text{SiO}_2/\text{TiO}_2/\text{Al}_2\text{O}_3/\text{SO}_4^{2-}/\text{PO}_4^{3-}$ can be used to remove or catalyze nitrogen oxides. To the contrary, *Jacob* merely states that its active material has an “inhibited oxidation activity for SO_2 and NO” (see *id.* col. 2, lines 20-35), which is clearly different from *lida*’s catalyst that is used for catalytically removing nitrogen oxides. Indeed, to remove nitrogen oxides, *Jacob* merely suggests that its SO catalytic converter can be “preceded by a reduction catalytic converter (SCR converter for NO_x reduction with ammonia or urea as reducing agent.” See *id.* col. 2, lines 1-3. In other words, *Jacob*’s catalyst functions differently from the catalyst taught in *lida*, in that *Jacob*’s catalyst sorbs and oxidizes certain compounds other than nitrogen oxides, while *lida*’s catalyst reduces nitrogen oxides using ammonia as a reducing agent.

As *Jacob* does not teach a catalyst for catalytically removing nitrogen oxides, *Jacob* could not have motivated one skilled in the art to modify *Iida*'s catalyst by adding sulfur or phosphorus. In fact, none of the cited references teaches or suggests that the inclusion of sulfur or phosphorus in the ammonia-aided reduction catalyst enables nitrogen oxide to be reductively decomposed effectively. Clearly, the Office is improperly picking and choosing from the cited references in an attempt to patchwork together the presently claimed invention. Only in hindsight would the claimed invention be envisioned; however, it is impermissible to pick components in the prior art to reconstruct the claimed invention. As specifically stated in M.P.E.P. § 2142, "[t]he tendency to resort to 'hindsight' based upon applicant's disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art." See also *Grain Processing Corp. v. American Maze Products, Col.*, 840 F.2d 902, 907, 5 U.S.P.Q.2d 1788, 1792 (Fed. Cir. 1988).

Finally, Applicants respectfully remind the Office that the Federal Circuit stressed that the teaching, suggestion, or motivation ("TSM") test retains an important role in obviousness analyses. *Takeda Chem. Indus., Ltd. v. AlphaPharm Pty., Ltd.*, 83 USPQ2d 1169, 1174 (Fed. Cir. 2007). The Court states that "[a]s long as the [TSM] test is not applied as a 'rigid and mandatory' formula, that test can provide 'helpful insight' to an obviousness inquiry. *Id.* (quoting *KSR Int'l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727, 1731 (2007).) Furthermore, the Federal Circuit subsequently held that proper support for a Section 103 rejection in the chemical arts requires the prior art to supply a

reason or motivation to make the claimed compositions. *Aventis Pharma. Deutschland GmbH v. Lupin Ltd.*, 84 USPQ 2d 1197, 1204 (Fed. Cir. 2007) (emphasis added) (citing *Takeda*, 83 USPQ2d at 1174).

Here, as stated above, none of the cited references, when viewed in its entirety, provides any teaching or suggestion that would have motivated one skilled in the art to arrive at the claimed invention by adding sulfur or phosphorus in the ammonia-aided reduction catalyst, as recited in amended claim 1 of the present application.

Accordingly, the Office has not established a *prima facie* case of obviousness.

Withdrawal of the rejection is respectfully requested.

IV. References Made of Record

Applicants note for the record that they do not necessarily agree with the Examiner's characterization of the "References Made of record." See Office Action at 6. Applicants further reserve the right to take appropriate action to establish the patentability of the disclosed invention over the listed documents, should one or more of the documents be applied against the claims of the present application.

V. Conclusion

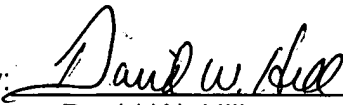
In view of the foregoing amendments and remarks, Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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